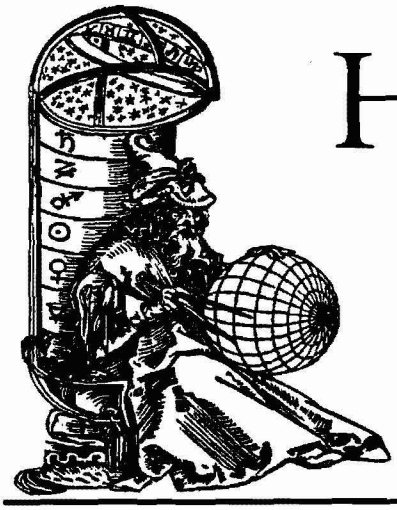

H·A·D NEWS

The Newsletter of the Historical Astronomy Division of the American Astronomical Society

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Naming the Satellites of Jupiter and Saturn

Albert Van Helden

The naming of Jupiter's and Saturn's satellites provides an interesting example of how such matters were handled before twentieth-century institutions were created to deal with them. As the discoverer of Jupiter's moons, Galileo claimed the right to name them. He wished to name them after his patrons, the Medici family, and asked whether they would prefer "Cosmic Stars" (after Cosimo II, Grand Duke of Tuscany) or "Medicean Stars." They opted for the latter, and through much of the seventeenth century the satellites were known by that name. In his notebooks, Galileo referred to them individually by number, starting with the satellite closest to Jupiter, but he never had occasion to refer to them in this way in print.

In Provence, Nicholas Claude Fabri de Peiresc tried to differentiate between the Medicean Stars by assigning them the names of individual members of the Medici family, but this system was not published and thus was never used by others. In his *Mundus Iovialis* ("Jovian World") of 1614, Simon Marius went into the naming problem in some depth. First, he himself used the numerical system beginning with the satellite closest to Jupiter. Second, he thought that he might call them after his patron, the Duke of Brandenburg—a suggestion followed by no one. Third, he suggested naming the outermost satellite "the Saturn" of Jupiter, the next one "the Jupiter" of Jupiter, the third one "the Venus" of Jupiter, and the innermost "the Mercury" of Jupiter. This cumbersome system never caught on. Finally, Marius related a suggestion by Kepler:

> Jupiter is much blamed by the poets on account of his irregular loves. Three maidens are especially mentioned as having been clandestinely courted by Jupiter with success. Io, daughter of the River Inachus, Callisto of Lycaon, Europa of Agenor. Then there was Ganymede, the handsome son of King Tros, whom Jupiter, having taken the form of an eagle, transported to heaven on his back, as poets fabulously tell... I think, therefore, that I shall not have done amiss if the First is called by me Io, the Second Europa, the Third, on account of its majesty of light, Ganymede, the Fourth Callisto...
>
> This fancy, and the particular names given, were suggested to me by Kepler, Imperial Astronomer, when we met at Ratisbon fair in October 1613. So if, as a jest, and in memory of our friendship then begun, I hail him as joint father of these four stars, again I shall not be doing wrong. [A. O. Prickard, tr., "The 'Mundus Jovialis' of Simon Marius," *The Observatory*, 39 (1916), p. 380.]

None of these suggestions caught on because

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Al Van Helden, an historian at Rice University, specializes in Galileo and his times. Among his publications are "The Invention of the Telescope," *Trans. American Phil. Soc.*, Vol. 67, Pt. 4, 1977, and a translation of Galileo's *Sidereus Nuncius*, U. Chicago Press, 1989 (available in paperback).

— *Class Notes* continued from page 1 —

with Jupiter's satellites, there was no confusion in the numbering system. Following Galileo and Marius, astronomers simply referred to them by number, beginning with the innermost satellite. With the satellites of Saturn, however, a problem developed. In 1655 Christiaan Huygens discovered the first and largest (Titan); then in 1671–72 Giandomenico Cassini discovered two more (Iapetus and Rhea), and in 1684 yet another two (Tethys and Dione). These five satellites were numbered like their Galilean counterparts. But when in 1789 William Herschel discovered two additional satellites (Enceladus and Mimas) internal to the first, confusion followed. Did one now renumber them all (thus causing confusion for those who consulted older works), refer to the two new ones as nos. 6 and 7 (thus making the order of the satellites confusing), or refer to them by order of discovery? Herschel's son, John Frederick William, suggested in 1847 that Saturn's satellites be given individual names of mythological figures associated with Saturn, after the suggestion made by Marius for Jupiter's satellites:

> As Saturn devoured his children, his family could not be assembled around him, so that the choice lay among his brothers and sister, the Titans and Titanesses. The name Iapetus seemed indicated by the obscurity and remoteness of the exterior satellite, Titan by the superior size of the Huyghenian, while the three female appellations [Rhea, Dione, and Tethys] class together the three intermediate Cassinian satellites. The minute interior ones seemed appropriately characterized by a return to male appellations [Enceladus and Mimas] chosen from a younger and inferior (though still superhuman) brood. ["Results of the Astronomical Observations made...at the Cape of Good Hope," p. 415.]

Herschel's suggestion was greeted with enthusiasm, and when, the following year, William Lassell and George Bond independently discovered an eighth satellite of Saturn, Lassell proposed to name it Hyperion, and Bond agreed. This system and the now revived suggestion by Kepler and Marius for Jupiter quickly became the convention for naming the satellites of the superior planets.

Editor's note: This essay was originally posted on HASTRO, Steve McCluskey's history of astronomy electronic discussion group. It is printed here by permission of the author. ☆

SIDEREAL MESSENGER

unfolding great and very wondrous sights
and displaying to the gaze of everyone,
but especially philosophers and astronomers,
the things that were observed by

GALILEO GALILEI,

Florentine patrician
and public mathematician of the University of Padua,
with the help of a spyglass lately devised by him,
about the face of the Moon, countless fixed stars,
the Milky Way, nebulous stars,
but especially about
four planets
flying around the star of Jupiter at unequal intervals
and periods with wonderful swiftness;
which, unknown by anyone until this day,
the first author detected recently
and decided to name

MEDICEAN STARS

Title page of Galileo's *Sidereus Nuncius*, as translated by Albert Van Helden.

"Kepler's Laws, So-Called" — Addendum —

Curtis Wilson has sent the following note pertaining to his "Class Notes" column in the last issue, *HAD News* 31: "Owen Gingerich informs me that, thirty years before Robert Small, Joseph-Jérôme Le Français de Lalande, in his *Abrégé d'Astronomie* of 1774, listed Kepler's Laws with the same numbering we use today. The *Abrégé* is a condensation of Lalande's *Astronomie*—the chief textbook of astronomy in Europe during the last 35 years of the 18th century; in the latter work Lalande describes Kepler's derivation of the laws in moderate detail, but does not number them. And in contrast to Robert Small, he does not claim these laws to be purely empirical or the result of an application of Baconian method."

Editor's Note: Curtis Wilson, Professor Emeritus at St. John's College, Annapolis, Maryland, has written extensively about the history of celestial mechanics from Kepler through the 19th century. His papers dealing with the early period are collected in *Astronomy from Kepler to Newton*, Variorum Reprints, 1989. He is an editor of Volume 2 of the IAU's *General History of Astronomy*.

HAD Dues

Invoices for 1995 HAD dues are scheduled to be mailed by the AAS office at the end of September. However, the mails do go awry. If you have not received your invoice by the beginning of November, please contact Sharon Savoy via e-mail at ssavoy@aas.org or fax at 202–588–1351. ☆

HAD Elections

Preparatory to the upcoming elections, the HAD Nominating committee, John Lankford, chair, Dorrit Hoffleit and Von Del Chamberlain, has nominated the following slate of candidates:

Chair
- Woodruff T. Sullivan

Vice Chair
- David H. DeVorkin
- Michael Zeilik

Committee (two positions)
- Robert A. McCutcheon
- Richard L. Walker
- Barbara L. Welther
- Thomas R. Williams

In accordance with the by-laws, further nominations by petition must be sponsored by 10% of the membership: 21 members. Nominees for Chair and Vice Chair must be Full Members of HAD (i.e., members of the AAS). Nominees for the Committee may be either Full or Affiliate Members of HAD. Petitions should be mailed to LeRoy Doggett, Nautical Almanac Office, U. S. Naval Observatory, Washington, DC 20392. They must be received by 31 October.

Ballots, with biographical information on the candidates, will be mailed to members by 8 November. They must be returned to the Secretary/Treasurer by 27 December. As specified in the by-laws, "A plurality of all votes cast shall be sufficient for election, except that the two nominees receiving the largest number of votes for Committee Member shall be declared elected. In case of tie, the Members present at the annual meeting shall choose by ballot among the tied candidates." Candidates will be informed of the results of the elections by 2 January. Results will be announced at our annual business meeting on 9 January, when the new officers will begin their two-year terms. Of course, if you can't come to the meeting, there is your February *HAD News.* ☆

Tucson Meeting

Our "annual" meeting will be held 7–9 January 1995 in conjunction with the AAS meeting in Tucson. In addition to the sessions of contributed papers, there will be a public lecture and a pair of special sessions, co-sponsored by the AAS Education Officer and the Working Group on Astronomy Education, devoted to "Teaching Astronomy Through History." The schedule is a follows:

Saturday, 7 January
- 7:00– 8:00 p.m. Public talk by E. C. Krupp on Native American astronomies.

Sunday, 8 January
- 1:00– 2:30 p.m. HAD I: Contributed papers
- 3:00– 5:00 p.m. HAD II: Special Session 1

Monday, 9 January
- 10:00–11:30 a.m. HAD III: Special Session 2
- 1:00– 2:00 p.m. Annual business meeting
- 2:00– 3:30 p.m. HAD III: Contributed papers

Special Session 1 (HAD II) bears the title "Teaching Astronomical History: Past, Present and Future." It will consist of invited papers by Richard Berendzen, David DeVorkin, Barbara Becker, and a speaker with whom we are negotiating.

Special Session 2 (HAD III) is devoted to "The Use of History in Astronomy Education." It will feature an invited paper by Owen Gingerich and a panel discussion, with audience participation. Members of the panel will include the speakers from HAD II, plus a representative from a publisher of astronomy textbooks.

Abstracts for papers are due at the AAS office by 21 October. Please note that the first session of contributed papers is on Sunday. If you are giving a contributed paper and have a strong preference for one of the sessions, please specify it on the abstract. Otherwise your paper will be scheduled according to topic. ☆

FSU Journal Fund

A year ago, HAD's International Relations Committee established a fund to purchase subscriptions to the *Journal for the History of Astronomy* for institutions in the Former Soviet Union. With a small donation you can make a significant contribution to scholarship in the FSU. Please send a check payable to the Historical Astronomy Division, with a designation to the FSU Journal Fund, to LeRoy Doggett, Nautical Almanac Office, U. S. Naval Observatory, Washington, DC 20392. ☆

Report from The Hague

Steven J. Dick

The International Astronomical Union held its triennial General Assembly in The Hague, The Netherlands, August 17–25. It was an unusual meeting both because of a new program format and a general reorganization of Commissions. Despite early fears, Commission 41 (History of Astronomy) emerged intact. What follows are only the history highlights from an extremely diverse meeting.

At the opening ceremony, Adriaan Blaauw presented Queen Beatrix with his just-completed *History of the IAU: The Birth and First Half-Century of the International Astronomical Union*, demonstrating that history is the highest and most elegant token of appreciation for royal attendance. This meeting marked the 75th anniversary of the Union. It not only occasioned Blaauw's volume, but an entire morning session devoted to the history of the IAU.

During the anniversary session Blaauw presented a paper on some difficult episodes in the early history of the Union, including efforts to make the Union truly international in the wake of World War I. Other speakers included David DeVorkin, S. Dumont and M. J. Martres, Alexander Gurshtein, Owen Gingerich, Woodruff Sullivan, Barbara Welther, and Suzanne Débarbat. The session was attended by at least five past General Secretaries of the IAU.

The afternoon session was devoted to various history projects around the world, and other works in progress. Many of the papers were by astronomers who are devoting considerable efforts to historical studies. It is regrettable, however, that few professional historians were able to attend.

A good part of the meeting was taken up with the proposed restructuring of the IAU, and the Executive Committee proposal that Commission 41 become part of an "Interdisciplinary Division" with Commissions 51 (Bioastronomy) and 14 (Atomic and Molecular Data). Since our Commission seems to be unique in being related to all other Commissions, a resolution was adopted requesting that Commission 41 be directly affiliated with the EC, rather than become part of another Division. This was rejected with the suggestion that Commission 41 might find a "center of gravity" in one of the Divisions. Officers and members will consider the matter over the next few months.

The new officers of the Commission are S. M. R. Ansari (India), President, and S. J. Dick (USA), Vice-President. New members of the Organizing Committee are S. Débarbat (France), A. Gurshtein (Russia), M. Jano (Japan), D. King (Germany) and J. North (UK). The next meeting of the IAU will be held in Japan in 1997. ☆

Report from The Vatican

Rolf Sinclair

"The Inspiration of Astronomical Phenomena" was the theme of a meeting held at the Vatican Observatory at Castel Gandolfo, June 27–July 2, 1994. The meeting was frankly an experiment, to look at the ways in which mankind has been fascinated by such phenomena, and how that fascination has been expressed through the ages.

The eighty attendees ranged from astronomers through historians and anthropologists to artists and musicians, students to senior researchers. All had a strong interest in one aspect or another of the main theme. It was this common interest that connected such diverse experiences, and that led to many contacts, both formal and informal, during the meeting, and gave a common ground for discussion bounded by the reality of astronomy. No single recipe or rule emerged that would bridge perceived gaps between sciences and humanities; rather, the result was a better appreciation of the diversity of human response to the skies, and a better sense of the importance of including astronomical phenomena in any study of man's culture and history.

The setting of the meeting, an isolated conference center overlooking Lago Albano across from Castel Gandolfo, helped develop a spirit of collegiality. One day was spent on a tour of the Vatican City gardens, a visit to some of the gems of the Vatican Museums, and a tour of the Papal Library and Archives that gave those who wished the opportunity to plan return research visits. The Chicago artist John David Mooney created several works of art especially for the meeting, and gave out two memorable shirts of his own design. A "Proceedings" will be published in two parts, dividing the papers dealing principally with art from those on other subjects. The Vatican Observatory is to be thanked for making the meeting possible and for its many thoughtful acts of hospitality. ☆